for Lancaster Sound where he will establish a magnetic station, as also another one farther west. These will be maintained for three years. Although the primary object is magnetic work, meteorological observations will undoubtedly also be taken, and these records in latitude 73° to 75° north and longitude somewhere between 80° and 120° west, must throw much light upon the origin and limiting boundaries of our great areas of high pressure and low temperature. From what we can learn from the daily weather maps of the United States and Canada, we have been led to the belief that cold waves originate in clear air, cooling by radiation on the eastern slope of the Rocky Mountains in the region covered by the watershed of the Mackenzie, Athabasca, and Saskatchewan rivers. On the other hand, the accounts of the cold winds experienced farther north make it quite probable that other areas of cold air accumulate over the frozen Arctic Ocean and the northern Archipelago and in extreme cases the outflow from this region may also contribute to the blizzards of the United States, while in ordinary cases this cold air may only flow as far southward as Hudson Bay and Labrador.

The north magnetic pole is ordinarily located in the little known region between Lancaster Sound and King Williams Land. The stations occupied by Amundsen will lie to the north of this pole, and his three years of observation will undoubtedly give its present location with great accuracy.

WILLIAM KAUCHER.

Mr. William Kaucher, one of the oldest voluntary observers of the Weather Bureau, died at his home at Oregon, Mo., on March 5, 1903, in his 72d year. He was born in Berks County, Pennsylvania, November 22, 1831, and his early youth was spent in Germantown, Ohio, where he received his education and learned the millwright's trade. Coming to the West in 1855 he located at Oregon, residing there until his death. For many years he followed his trade as millwright and was identified with the erection of many steam mills in that section of the State, and also in Iowa, Nebraska, and Kansas, and at different times was also engaged in milling and other manufacturing enterprises. He was a great student and accumulated a library of some 12,000 publications. Upon locating at Oregon he began systematic observations of temperature, precipitation, and other meteorological phenomena, which he continued until a short time before his death, and Missouri is indebted to him for one of the longest and most accurate meteorological records ever kept in the State. His connection with the Weather Bureau as a voluntary observer dates from the early seventies.

Strong in purpose for the right, wise in council, kind and charitable toward all, he lived, as all should live, an unselfish life, doing ever what needed to be done and striving always to advance the best interests of his fellow men. In his death Missouri has lost one of her noblest citizens, and the Weather Bureau one of its staunchest friends and most faithful observers.—*A. E. Hackett, Section Director.*

THE FIRST USE OF THE WORD "BAROMETER."

The following article, by A. Lawrence Rotch, (dated Blue Hill Observatory, April 13, 1903,) is reprinted from Science, New York, Vol. XVII, page 708:

I quite agree with Dr. Bolton's conclusion that Robert Boyle introduced the word "barometer" into our language about the year 1665 (Science, p. 548). Although Dr. Bolton finds that the first use of the word by Boyle was in the *Philosophical Transactions* of 1666, yet he suspects him to be the author of an anonymous communication to that journal the previous year, in which the "suspended Cylinder of Quicksilver" was called a "Barometer or Baroscope." For conclusive proof that Boyle really used these terms in the year 1665, I would cite a work that appears to have escaped Dr. Bolton's notice, viz., "The General History of the Air * * * by the Hon. Robert Boyle, Esq.," published in London in 1692, which contains "A short Account of the Statical Baroscope, imparted by Mr. Boyle, March 24, 1665." In this letter to Mr. H. Oldenburgh, Boyle describes the instrument as some large and light glass bubbles, counterpoised in a pair of scales, and placed near a "Mercurial Baroscope" (also called a "Barometer" in the same letter), from which he might learn the present weight of the atmosphere. The same work contains probably the earliest systematic register of thermometer, barometer, hygrometer, wind and weather in England, viz., that kept by J. Locke, the philosopher, at Oxford and at London, between 1666 and 1683, with interruptions. The reading of the mercurial barometer, designated at first "baroscope," was recorded in inches and tenths, but in another register, kept at Townley, in Lancashire, during a portion of the years 1670 and 1671, it was recorded to hundredths of an inch.

Professor G. Hellmann, the eminent German meteorological bibliographer and historian, although cognizant of Boyle's "General History of the Air," seems to be unaware of the letter quoted, since he also states in the introduction to No. 7 of his "Neudrücke von Schriften und Karten über Meteorologie und Erdmagnetismus" that the word "barometer" was first used by Robert Boyle in 1666, whereas it is certain, from what I have shown, that Boyle had already employed it the year before.

NOTES ON THE BAROMETRIC PRESSURE AT COLON AND ALHAJUELA.

In order to obtain the correction to the barograph at Alhajuela, the reduced sea level pressure, 763.51 millimeters (30.060 inches), at that place has been compared directly with the mean pressure, 759.62 millimeters (29.907 inches), for Bridgetown, Willemstad, and Port of Spain. The record of eight months gives 758.60 millimeters (29.867 inches), and as this is probably correct for the year, it should not differ so much from 759.62, if the correction is to be found for the instrument as General Abbot has done. But by Chart 29, Year, West Indies, of the Barometry Report, it is seen that the isobars do not run parallel to the circles of latitude, so that the mean pressure of the eastern stations can not be assumed as applicable to Alhajuela. The pressure is evidently considerably lower, although it is not possible to draw the isobars from the data at hand. The difference, 763.51 — 759.62 = 3.89 millimeters, can not be taken as the barograph error, and the evidence is that it should be at least one millimeter greater, though the exact amount is unknown.—*F. H. B.*

The article by General Henry L. Abbot, on page 124 of this REVIEW, endeavors to obtain the mean annual pressure at the Isthmus of Panama by combining together eight months of the record at the United States Weather Bureau station at Colon and three and a half years of record at Alhajuela by the barograph belonging to the new Panama Canal company. In the course of this work the author seems to assume that the annual mean barometric pressure (reduced to mean sea level at the Isthmus) will not materially differ from the annual mean at sea level for the three West Indian stations: Bridgetown, Willemstad, and Port of Spain, Trinidad. But this assumption is not justified by what we know of the distribution of pressure in the equatorial regions. The annual isobars published first by Buchan in 1868 for the whole world and by many other authorities since then, unite in showing that the equatorial belt of low pressure wanders around irregularly. The most recent isobaric charts for the West Indies are the thirteen prepared by Prof. F. H. Bigelow and published as Chart XXIX in his report on the barometry of the United States, Canada, and the West Indies. In this series the last, or annual, chart indicates that the pressure at Colon and Panama may be considerably less than 29.90, which is the average of Bridgetown (29.92), Willemstad (29.88), and Port of Spain (29.89).

It is possible to combine the records for Colon and Alhajuela without reference to the above-mentioned objectionable assumption. The two stations are so near together that the monthly and annual mean pressures at sea level, for each are not likely to differ appreciably. We may therefore assume that

during those months for which we have simultaneous records the differences between the Colon barometer and the Alhajuela barograph ought to give us a correction nearly uniform from month to month and therefore applicable throughout the year.

Fortunately the Weather Bureau has records for 7:40 a. m. local time at Colon during August, September, and October, 1902. The observations were made with a standard mercurial barometer properly reduced to standard gravity and sea level. The resulting mean pressures for this one daily observation are 29.826, 29.850, and 29.872 inches, respectively. By conversion these become 757.56, 758.18, and 758.73 millimeters. These figures can be reduced to the average for twenty-four hours by applying the corrections given by the hourly tables for Alhajuela. These corrections are —1.10, —1.19, and —1.14 millimeters. Hence, the mean pressures at Colon at sea level for continuous records will be 756.46, 756.99, and 756.59 millimeters. Now General Abbot gives in his Table 2, page 125, the values for Alhajuela deduced from 24 daily observations, as reduced to sea level by his method, for each month from July, 1899, to December, 1902. Comparing his figures for August, September, and October, 1902, with those just given by us for Colon we find that his figures need a nearly uniform correction of —6.00 millimeters. If the Alhajuela barograph retained its instrumental corrections during these years without change and if the reduction to sea level has been properly done, then this latter comparison indicates that all the monthly means in General Abbot's Table, No. 2, need a correction of —6.00 millimeters in order to reduce them to the standard sea level pressure at Colon. This, therefore, gives for the latter place a mean annual pressure of 757.51 millimeters, or 29.823 inches, as the average for three and a half years' record. Although this conclusion agrees closely with the ordinary charts of isobars yet it needs confirmation. It is greatly to be regretted that the Weather Bureau record is so fragmentary, and that the French record does not include the standard mercurial barometer.—*C. A.*

CORRIGENDA.

MONTHLY WEATHER REVIEW, May, 1899, Vol. XXVII, page 198, column 2, fig. 1, last word of title, for "southeast" read "southwest"; line 27 from the bottom, for "91" per cent read "51." Page 200, column 1, line 8, omit the words "on the coast." Page 202, column 1, line 17 from bottom, for "report" read "connection"; column 2, Table 14, December, 1887, for "16.28" read "12.68."

MONTHLY WEATHER REVIEW October, 1899, page 493, Vol. XXVII, Table III, Bridgetown 5 p. m. for "89.6" read "80.6."

MONTHLY WEATHER REVIEW, OCTOBER, 1900, Vol. XXVIII, page 467, Willemstad, 1 a. m., for "75.9" read "79.5."

MONTHLY WEATHER REVIEW for December, 1902, p. 567, column 2, rainfall table. The stations "Laniakea (Nahuina)" and the station "Upper United States Experiment station (Castle)" are identical. The former name is preferred by Mr. Lyons.

The Station "Vealia" is the same as "Kealia" and the former name should be omitted.

The station "Wahiawa" and the station "Wahiawa (Mountain)" are the same; the latter name is preferred; the elevation is uncertain but is believed to be about 3000 feet.

MONTHLY WEATHER REVIEW for January, 1903, page 31, headline, for "Division of Records and Meteorological Data," read "Division of Meteorological Records."

MONTHLY WEATHER REVIEW for February, 1903, page 69, transpose the numbers and titles of figs. 2 and 1; column 2, line 5, for "fig. 2" read "fig. 1". Page 70, transpose the numbers and titles of figs. 4 and 3.

MONTHLY WEATHER REVIEW for March, 1903, page 127, column 2, line 17, dele "also". Page 128, column 2, line 2, "nue" read "neu". Page 128, column 2, fig. 3, title for "focus" read "forces". Page 129, column 1, line 17, dele "of the". Page 132, column 1, line 1, for "systems" read "system"; column 1, line 26, "north-south" read "north-and-south"; line 27, "east-west" read "east-and-west"; column 1, line 6 from bottom, for "two" read "too"; column 1, note 5, for "42" read "43".

THE WEATHER OF THE MONTH.

By Mr. P. C. DAY, temporarily in charge of Division of Meteorological Records.

CHARACTERISTICS OF THE WEATHER FOR MARCH.

PRESSURE.

The distribution of mean atmospheric pressure is graphically shown on Chart IV and the average values and departures from normal are shown in Tables I and VI.

The chart of normal pressure over the United States and Canada for March shows an area of high pressure, slightly above 30.05 inches, over the region south of the Ohio and east of the Mississippi rivers, and extending eastward to the coast line of the South Atlantic States and the Florida Peninsula. Another area of about equal barometric pressure covers the greater part of Minnesota and the two Dakotas, while a third approaches the coast line of northern and central California.

For March, 1903, the area of high pressure, normal over the Appalachian region, lay far to the northeastward and covered the Middle Atlantic States, New England, and Canadian Maritime Provinces with pressure slightly above 30.20 inches. An area of low pressure, about 29.90 inches, is normal over New Mexico and Arizona, and during the current month covered this region with slightly increased pressure, and extended northwestward over Nevada into Oregon and Washington.

The pressure for the current month was above the normal over the entire region east of the Continental Divide, with marked departures over the eastern portion, ranging from +0.15 over the Middle Atlantic States to +0.35 over the more easterly Canadian Provinces. Over a small area west of the Rocky Mountains the pressure was slightly below the normal.

Compared with similar values for February, 1903, the pressure showed a marked increase over all the territory east of the Mississippi River and north of the east Gulf States, extending eastward into the north Atlantic Ocean. At St. Johns, Newfoundland, the average pressure for March showed an increase over that of the previous month of more than half an inch. Over all the country west of the Mississippi River the pressure decreased from that of February, attaining a maximum negative departure of 0.30 inch or more over the middle Plateau region.

TEMPERATURE OF THE AIR.

The distribution of maximum, minimum, and average surface temperatures is graphically shown by the lines on Chart VI.

Under the influence of the high pressure covering the northeastern part of the country, the normal westerly and northwesterly winds gave way to warm easterly and southerly winds over nearly the entire region east of the one hundredth meridian, which, with a percentage of cloudiness much above the normal, gave for practically the entire month equable temperatures, both day and night, with monthly means far above the average, and at many points higher values than before recorded during the period of observation.

Over large areas in the lower Lake region, the Middle Atlantic States, and New England the average for the month exceeded the normal by from 10.0° to 12.0°. At many points in this region the month will be remembered as the most remarkable on record as regards thermal conditions. At New